

What are the right questions to ask when purchasing a CO₂ laser cutting & engraving machine?

There are many brands of laser to choose from. Not all lasers are the same. From cheap hobby machines to well-engineered professional systems there are many points of difference to consider. What are the right questions to ask to find which laser is right for your business? Of equal importance is how you choose a laser supplier.

LASER TUBE

What style of laser tube does the machine use?

- Glass tube - Developed in the 60's this is the original style of CO2 laser made from a glass cylinder with glue or rubber seals.
- Ceramic tube - Developed in the 70's the ceramic tube was the next technological step in CO2 laser development, made from a ceramic cylinder coated with aluminium oxide and using glue or rubber seals.
- Metal core tube - Developed by the US department of Defence in the 80's the aluminium core tube is the latest development in CO2 laser tube technology made from an aluminium cylinder with a welded seal.

How do they compare?

	Purchase price	Stability with cutting	Stability with engraving	Expected life	Replacement cost	Time to replace
Glass	\$	√	x	3-6 months	100%	2 hours
Ceramic	\$\$\$\$	√	√	5+years	100%	2 hours
Metal	\$\$	√	√	5 years	75%	2 hours
ULS Metal Cartridge	\$\$	√	√	5 years	50%	1 minute*

*With patented ULS laser cartridge system

Is the laser tube air cooled or water cooled?

- Water cooled lasers use pumps to circulate water around the laser tube to disperse heat. They add significantly to operating costs and complexity of maintenance.
- Air cooled systems use a simple fan and are more compact.

MOTION SYSTEM

How is the beam delivered from the tube to the material?

- Galvo mirrors - High speed scanning galvanometer mirrors steer the beam around the table. They are not capable of cutting but provide extremely fast engraving speeds in a limited work area.
- Gantry or Flying Optics
 - Stepper motors - Uses motors with predefined steps to position the gantry in XY. Low cost to replace and less maintenance required.
 - Servo motors - Uses motors and an encoder to position the gantry in XY. Potentially faster and smoother curves. Expensive to replace and encoders require maintenance.

AIR FLOW

Does the machine have good airflow across the engraving bed?

- Good airflow removes smoke and debris from the engraving area. Without good airflow you require air assist technology driven by an air compressor. This adds to the running cost of the system.

SAFETY

Does the machine comply with Australian, US or EN laser safety standards?

What class does the laser run in?

- Interlocks should prevent intentional and unintentional operation of the laser when any door is open. If you can fire the

laser when a door is open you must comply with stringent laser safety regulations and are liable for injury caused.

Is the lid made from safety glass or acrylic?

- If a small fire does start in your machine then safety glass will help contain the flames and smoke. An acrylic or polycarbonate lid will add fuel to the flames, accelerating the spread of the fire.

What fire protection features does the machine have?

- If a small fire does start in the machine will it shut down and sound an alarm or will it continue to operate?

SOFTWARE DRIVER

Can the driver accept files from any software in any format?

- Most professional laser systems will accept files from any software in any format. Some low cost hobby machines will only accept certain formats from certain applications limiting what can be achieved with the system.

Does the driver have an advanced database of settings for a wide range of materials?

OPERATING COST

What is included the initial purchase price?

What is the expected operating cost?

- Running costs - Consumables, power
- Maintenance costs - Technical support, on-site visit by technician

Considering the answers to the above questions, is a lower purchase price offset by higher operating costs?

LOCAL SUPPORT & SERVICING

How long has the supplier been operating in Australia?

- 29 years ago LST was the first company to import platform style CO2 laser systems into Australia and the first international distributor for Universal Laser Systems (ULS).

Is the distributor Australian owned?

- LST is 100% Australian owned.

How many machines do they support?

- LST has over 800 machines Australia-wide, with many clients having purchased multiple machines as their business has grown.

How many technicians are in their team?

- LST has 6 trained service technicians including a laser physicist and engineer. Our team is available for phone support by calling 1800 806 252.

Are the machines serviceable by the operator?

- The modular design of ULS system means 90% of the tasks can be completed by the operator.

Overnight delivery of spare parts & consumables?

- Overnight delivery is available on parts ordered before 2pm EST.

What is the standard warranty and what are the conditions or limitations?



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